

Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Headquarters Tech Support**

Site Summary Level: **Headquarters Technical Support**

Project **HQNP-NCST / Nuclear Criticality Safety Training (DNFSB 97-2)**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0068**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: The DOE Nuclear Criticality Safety Program (NCSP) contains seven program elements: Critical Experiments, Benchmarking, Analytical Codes, Nuclear Data, Training and Qualification, Information Preservation and Dissemination, and Special Support and Studies. Interdependence among these program elements is significant and a funding shortfall in any of the elements will result in severe programmatic impact. The projected funding levels for each of the program elements and NCSPMT management activities for Fiscal Year (FY) 1999 through FY 2003 are addressed by the five-year plan.

Technical Approach: The NCSP five-year plan is organized as follows. Each program element is described with regard to current capability, current programmatic requirements, anticipated future direction, and funding requirements. The intent is to contrast current capability with programmatic requirements and clearly present a plan for enhancing capability to enable adequate support for DOE's cross cutting criticality safety programmatic needs.

The criticality studies from FY-2003 through FY-2020 will be determined as each five year plan is yearly updated. The requirements of the DNFSB are a major portion of the early studies.

Equal or greater funding of these criticality studies is provided by DP, HE, NE and ER.

Project Status in FY 2006:

The criticality studies will be continued in FY-2006 and specific studies to be performed will be detailed in the FY-2001 Five-Year Plan.

Post-2006 Project Scope:

The criticality studies will be continued post FY-2006 and specific studies to be performed will be detailed in the yearly update to the Five-Year Plan by the Nuclear Criticality Safety Program Management Team (NCSPMT).

In FY-2006 through FY-2010, EM will provide 50% of the nuclear criticality studies funding. In FY-2011 and out years, EM will provide 27% of the nuclear criticality safety studies funding.

The continuation of the program past FY 2006 will be required to insure the safety of the nuclear materials that will be processed by EM and new facilities and materials received from Defense Program for cleanup. This program will continue as long as there is critical nuclear material that must be safely dispositioned from the EM program. The NCSP contains seven program elements: Critical Experiments, Benchmarking, Analytical Codes, Nuclear Data, Training and Qualification, Information Preservation and Dissemination, and Special Support and Studies. The DOE Nuclear Criticality Safety Program (NCSP) will insure DOE maintains the capability to accurately predict the safety of facilities and materials being received by EM. This effort will jointly funded by DP and other DOE offices and will include tasks to be performed at the Los Alamos Critical Experiment Facility (LACEF).

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Project End State

The initial project end state will be the successful implementation of Recommendation 97-2. The purpose of this nuclear criticality safety program five-year technical plan is to provide technical detail and funding projections to support Nuclear Criticality Safety Program. The continuation of the program pass FY 2006 will be required to insure the safety of the nuclear materials that will be processed by EM and new facilities and materials received from Defense Program for cleanup. This program will continue as long as there is critical nuclear material that must be safely dispositioned from the EM program.

Management Team (NCSPMT) responsibilities for implementing DNFSB Recommendation 97-2. This five-year plan has been developed by the CSSG and approved by the NCSPMT.

The final End State will be determined by the Nuclear Criticality Safety Program Management Team (NCSPMT) and will correspond to the development of safe disposition of all critical nuclear materials, estimated to be FY-2020 or later depending on the disposition of critical nuclear material in the out years.

Cost Baseline Comments:

EM Costs: , Non-EM Costs:
FY-2000, \$3,750,000, \$6,470,000, ,
FY-2001, \$3,825,000, \$6,470,000,
FY-2002, \$3,825,000, \$6,917,000,
FY-2003, \$3,825,000, \$7,309,000
FY-2004, \$3,825,000, \$7,309,000
FY-2005, \$3,825,000, \$7,309,000
FY-2006, \$3,690,000, \$7,309,000
FY-2007, \$3,620,000, \$7,309,000
FY-2008, \$3,550,000, \$7,309,000
FY-2009, \$3,300,000, \$7,309,000
FY-2010, \$2,957,000, \$7,309,000
FY-2011/ ,
FY-2015, \$9,930,000, \$36,545,000
FY-2016/
FY-2020, \$7,925,000, \$36,545,000

The cost estimates are determined through the development of budgets by the Nuclear Criticality Safety Program Management Team (NCSPMT) to meet the infrastructure and specific projects requirements to address DOE's nuclear criticality safety needs. The NCSPMT uses a five-year planning approach which is updated annually to address changing needs.

The continuation of the program pass FY 2006 will be required to insure the safety of the nuclear materials that will be processed by EM and new facilities and materials received from Defense Program for cleanup. This program will continue as long as there is critical nuclear material that must

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Project Description Narratives

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Safety & Health Hazards:

On July 14, 1997, the Department of Energy (DOE) accepted Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 97-2. This recommendation addressed the effectiveness of criticality safety programs at defense nuclear facilities. In developing the Implementation Plan for Recommendation 97-2, DOE built upon the actions taken for DNFSB Recommendation 93-2, The Need for Critical Experiment Capability. The Implementation Plan for Recommendation 93-2 established programs to maintain the viability of the Department's critical experiments program and improve the knowledge base underlying prediction of criticality. All ongoing activities of the NCPP have been included under the program established for DNFSB Recommendation 97-2. The Implementation Plan for Board Recommendation 97-2 supports the efficient integration and functioning of criticality safety programs across all DOE operations involving fissile material.

Safety & Health Work Performance:

DOE has established that the Assistant Secretary for Defense Programs (DP-1) is responsible for leading the Department's Nuclear Criticality Safety program (NCSP). The Departmental Representative to the DNFSB (S-3.1) will assist DP-1 in resolving funding issues, if necessary. The Responsible Manager is the Deputy Assistant Secretary for Research and Development, Office of Defense Programs (DP-10), who will oversee execution of the Implementation Plan. A Nuclear Criticality Safety Program Management Team (NCSPMT) has been chartered to manage implementation of Recommendation 97-2, including all ongoing NCPP activities initiated in response to DNFSB Recommendation 93-2. The NCSPMT receives technical support from a Criticality Safety Support Group (CSSG).

PBS Comments:

Baseline Validation Narrative:

General PBS Information

Project Validated?	Date Validated:
Has Headquarters reviewed and approved project?	No
Date Project was Added:	
Baseline Submission Date:	7/8/1999
FEDPLAN Project?	Yes

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General PBS Information

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	Y	Y	N	N	N	N	N

Project Identification Information

DOE Project Manager: Hoyt Johnson, EM-66
DOE Project Manager Phone Number: 202-586-0191
DOE Project Manager Fax Number: 202-586-5750
DOE Project Manager e-mail address: hoyt.johnson@em.doe.gov
Is this a High Visibility Project (Y/N):

Planning Section

Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS Baseline (current year dollars)	87,142	134,219	221,361	5,600	2,800	2,294		3,750	10,135	10,135	10,625	11,250	11,250	11,250	10,853	
PBS Baseline (constant 1999 dollars)	81,084	100,292	181,376	5,600	2,800	2,294		3,750	9,927	9,722	9,983	10,353	10,140	9,931	9,384	
PBS EM Baseline (current year dollars)	38,134	31,282	69,416	5,600	2,800	2,294		3,750	3,750	3,750	3,825	3,825	3,825	3,825	3,690	
PBS EM Baseline (constant 1999 dollars)	36,042	23,812	59,854	5,600	2,800	2,294		3,750	3,673	3,597	3,594	3,520	3,447	3,377	3,190	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	10,970	11,094	10,645	10,196	47,286	44,028	0	0	0	0	0	0	0	0	0	0

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	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (constant 1999 dollars)	9,290	9,201	8,647	8,112	35,364	29,678	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	3,620	3,550	3,300	2,957	9,930	7,925	0	0	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	3,066	2,944	2,681	2,353	7,427	5,341	0	0	0	0	0	0	0	0	0	0

Non-EM Costs included in the Cost Baseline

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Non-EM Category: Other													
DOE-Other or unknown				63	63	64	66	66	66	66	67	68	69
	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
Non-EM Category: Other													
DOE-Other or unknown	71	79	82										

Baseline Escalation Rates

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
	0.00%	0.00%	0.00%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%
	2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

Project Completion Date Changes:

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Project Reconciliation

Previously Projected End Date of Project:

Current Projected End Date of Project: 9/30/2020

Explanation of Project Completion Date Difference (if applicable):

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	Actual 1997 Cost:	2,800	Actual 1998 Cost:
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	-2,800	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):	-76
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	-2,876		

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):		
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	-2,876	
Additional Amount to Reconcile (+):	54,836	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	51,960	

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
FY-2001 TARGET ACTIVITIES FOR DNFSB 97-2 & 97-3			9/30/2001					Y			
FY 2001 DECREMENT ACTIVITIES FOR DNFSB 97-2 & 97-3			9/30/2001					Y			

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Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
FY 2002 PLANNING ACTIVITIES			9/30/2002					Y			
FY 2003 PLANNING ACTIVITIES			9/30/2003					Y			
FY 2004 PLANNING ACTIVITIES			9/30/2004					Y			
FY 2005 PLANNING ACTIVITIES			9/30/2005					Y			
FY 2006 PLANNING ACTIVITIES			9/30/2006					Y			
POST FY 2006 PLANNING ACTIVITIES			9/30/2020					Y			
Project Start FY-93, Funding Start FY-97			10/1/1997					Y			
Project End, FY-2020			9/30/2020					Y			

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
FY-2001 TARGET ACTIVITIES FOR DNFSB 97-2 & 97-3											ORNL activities in support of DOE's Implementation Plan for the DNFSB 97-2 and 93-2 recommendations. Resolving nuclear data deficiencies through measurement, evaluation, and testing and providing analytical methods (KENO) and guidance tools to analysts
FY 2001 DECREMENT ACTIVITIES FOR DNFSB 97-2 & 97-3											Nuclear Criticality Safety Program (NCSP) - ORNL activities in support of DOE's Implementation Plan for the DNFSB 97-2 and 93-2 recommendations. \$2,757,000 Nuclear Criticality Safety Program (NCSP) - LANL activities in support of DOE's Implementation

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Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
FY 2002 PLANNING ACTIVITIES											ORNL activities in support of DOE's Implementation Plan for the DNFSB 97-2 and 93-2 recommendations. Resolving nuclear data deficiencies through measurement, evaluation, and testing and providing analytical methods (KENO) and guidance tools to analysts
FY 2003 PLANNING ACTIVITIES											ORNL activities in support of DOE's Implementation Plan for the DNFSB 97-2 and 93-2 recommendations. Resolving nuclear data deficiencies through measurement, evaluation, and testing and providing analytical methods (KENO) and guidance tools to analysts
FY 2004 PLANNING ACTIVITIES											ORNL activities in support of DOE's Implementation Plan for the DNFSB 97-2 and 93-2 recommendations. Resolving nuclear data deficiencies through measurement, evaluation, and testing and providing analytical methods (KENO) and guidance tools to analysts
FY 2005 PLANNING ACTIVITIES											ORNL activities in support of DOE's Implementation
FY 2006 PLANNING ACTIVITIES											Nuclear Criticality Safety Program (NCSP) - ORNL activities in support of DOE's Implementation Plan for the DNFSB 97-2 and 93-2 recommendations. Resolving nuclear data deficiencies through measurement, evaluation, and testing

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Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
POST FY 2006 PLANNING ACTIVITIES											and providing analytical m Nuclear Criticality Safety Program (NCSP) - ORNL activities in support of DOE's Implementation Plan for the DNFSB 97-2 and 93-2 recommendations. Resolving nuclear data deficiencies through measurement, evaluation, and testing and providing analytical
Project Start FY-93, Funding Start FY-97				Y							The start of this project began with Denfense Nuclear Facility Safety Board (DNFSB) recommendation 93-2. EM, DP and other DOE offices planned the execution of the project before funding was available to start the project.
Project End, FY-2020					Y						Funding for the project bega The final End State will be determined by the Nuclear Criticality Safety Program Management Team (NCSPMT) and will correspond to the development of safe disposition of all critical nuclear materials, estimated to be FY-2020 or later depending on the dispo